

Landsat remote-sensing, receiving system to accept transmissions from existing Landsats to collect photographs of Chinese territory for mapping and assessing mineral resources. —GBL

Benjamin Levich gets Einstein chair at CCNY

This spring refusenik Benjamin Levich becomes an Einstein professor at City College of the City University of New York, seven years after he first applied for an exit visa from the Soviet Union and a few months after the visa was finally granted. Since December he has been a professor at Tel Aviv University. During his recent visit to New York, we discussed Levich's difficulties in emigrating, his plans for the future and the plight of Soviet Jewish scientists.

In February 1972 Levich, who was then a corresponding member of the Soviet Academy of Sciences and head of the theoretical department in the Institute of Electrochemistry in Moscow, applied for an exit visa to Israel (PHYSICS TODAY, September 1972, page 69). Since then his attempts to leave have received wide publicity and many groups of scientists have taken up the cause of helping Levich and others like him.

Although many Soviet Jewish scientists have succeeded in emigrating, including Levich's two sons (one of whom is a theoretical physicist), Levich, perhaps because he was the only refusenik member of the Soviet Academy, had not. Various Soviet officials had told him he could not leave because he knew government secrets. Levich told us that he had in fact written 18 or 19 secret reports, but none later than 1949. All of them, he said, were long since obsolete.

Levich, a theoretical physicist who studied with Lev Landau, has worked primarily in chemical physics, especially hydrodynamics. He is known as the founder of physico-chemical hydrodynamics. In his honor, and to aid in his emigration, two international conferences on that subject were held in 1977 and 1978. This spring Pergamon Press will begin publishing the *Journal of Physico-Chemical Hydrodynamics*, to be edited by Brian Spaulding of Imperial College, London, with Levich serving as chairman of the advisory board.

New York State has five Einstein professorships, one of which was recently offered to and accepted by Levich. He will have a joint appointment at City College in the physics and chemical engineering departments. In addition, he plans to continue his affiliation with Tel Aviv University. Levich hopes to organize an Institute of Applied Chemical Physics to be operated jointly by City College and Tel Aviv. The emphasis would be in fundamental applied science (such as mass transfer, turbulence,



LEVICH

properties of monolayers, and adsorption) rather than technology.

We asked Levich if antisemitism is a problem in the Soviet Union for those scientists not applying for visas. He said it is essentially impossible today for a Jewish student to be admitted to any first-rank university in the Soviet Union. According to the Committee of Concerned Scientists, which sponsored Levich's first visit to the US, official Soviet statistics suggest a quota for Jews. The Committee told us that "Education, Science and Culture in the USSR: A Collection of Statistics," published by the Central Statistical Directorate, USSR Council of Ministers (1977), reports that the number of Jewish graduate students in science dropped from 4945 in 1970 to 2841 in 1975, a decline of 40%, while the total number of graduate students in that period dropped from 99 400 to 95 700. The same source reports that the number of undergraduate Jewish students (for all fields) dropped from 106 000 to 66 900 in 1970-1975, a decline of 41%. During the same period, the total number of undergraduates increased from 4 580 000 to 4 850 000.

The percentage of Jews in the USSR today (where being Jewish is considered a nationality, an entry that appears on one's internal passport) is estimated at roughly 1-1.5%. In the US, the number of Jews is estimated at 3-5%. The same official Soviet statistics report that in 1970, 7% of scientific workers were Jewish; in 1975 the number was 6%. Similar estimates in the US would be much more difficult to obtain. Ten years ago a survey of 60 000 full-time US faculty mem-

bers in all disciplines found that 14% of academic physicists had Jewish backgrounds (PHYSICS TODAY, October 1972, page 61).

Levich told us that in the Soviet Union today, young Jewish physics students find it very difficult to get a position as an "aspirant," one going for a "candidate" degree (similar to the Western PhD). He can still work toward the degree, but only part-time, rather than the full-time arrangement an aspirant receives. For the older Jewish scientist, there is less difficulty, Levich said, but if he wants to change jobs, being Jewish will create problems in finding a new one.

What can Western scientists do to help? "I can't propose any major prescription because all steps have positive and negative features." But showing concern is extremely important. Visits to the refuseniks in the Soviet Union, for example, are helpful, and are not dangerous to the visitor, provided he does not violate Soviet law (such as bringing in religious books). —GBL

DOD budgets for 13% boost in research

The Carter Administration has requested \$573.4 million for Department of Defense "6.1 research" (which includes basic and some applied research), a 13% real growth over the FY 1979 budget. As in previous years, a large portion of the 6.1 research budget would support physics-related research: \$79.4 million for physics, radiation sciences, astronomy and astrophysics; \$58.7 million for mechanics and energy conversion; \$53.2 million for materials, and \$51.9 million for electronics.

Robert Lontz, the Deputy Assistant for Research in the Office of the Under Secretary of Defense for Research and Advanced Technology, told us that DOD is especially encouraging proposals for physics research related to ultra sub-micron electronic devices, near-millimeter wave techniques, Rydberg-state atoms, interface phenomena, detonation phenomena, pulsed power control, electronic materials, fatigue in metals, non-destructive evaluation techniques and tailored properties of materials.

DOD would also like to increase its support for laser research from \$180 to \$211 million and for charged-particle beam research from \$17 to \$29 million. In the latter area, the department will concentrate on the development of appropriate accelerator technology (100 megavolts to 1 gigavolt) and the study of how such a beam will propagate through the atmosphere, according to Richard Airey, director of DOD's directed-energy technology program. The type of particles used is classified, according to a DOD spokesman.

Army in-house and contract research will increase from \$116.3 to \$136.2 million,

continued on page 116

DOD budget

continued from page 114

the Navy's from \$191.4 to \$224.2 million and the Air Force's from \$104.9 to \$122.2 million. In addition, the Defense Advanced Research Projects Agency is slated to receive \$89.2 million (an increase of 42%).

DOD's FY 1979 request for a Defense Science and Engineering program, which was designed to strengthen the department's ties with the academic community (PHYSICS TODAY, May 1978, page 103), was not funded by Congress. The latter was sympathetic to the aim of the program, but it did not wish to establish an entirely new program at this time.

—CBW

Four scientists in Congress reelected

Of the five congressmen with scientific backgrounds who sought reelection last November (PHYSICS TODAY, October, page 93), all but one, Newton Steers of Maryland, were voted into another term. Mike McCormack (D-Wash.), who holds a master's degree in chemistry, will serve a fifth term; James Martin (R-N.C.), who has a PhD in organic chemistry, was elected to a fourth term; George Brown (D-Cal.), who holds a BS in physics, won for the ninth term and David Emery (R-Me.), who received a bachelor's degree in electrical engineering, will serve a third term in the House. None of the five scientists challenging incumbents for House seats were elected.

Japan and US seek joint coal and fusion efforts

Fusion energy and coal conversion R&D will receive the initial emphasis, if the US and Japanese governments approve a recently signed "framework of cooperation" in science and technology between the two countries. The tentatively estimated cost of the projects is \$1 billion over a 10-year period. US and Japanese delegations reached the agreement following a September meeting in Tokyo (PHYSICS TODAY, November 1978, page 92) and a follow-up conference in Washington in November.

Cooperative magnetic fusion projects will include exchange programs, joint research of noncircular cross-section plasmas based on the Doublet III device at General Atomic, La Jolla, Calif., the establishment of a joint institute for theoretical and computational research in plasma physics (with Japan and the US each having a center), and joint planning of non-tokamak magnetic-confinement concepts.

Japan and the US will cooperate in coal-liquefaction projects based on the

solvent refined coal process and on direct hydrogenation. The two countries will also carry out joint projects in solar-energy conversion-photosynthesis, geothermal energy and high-energy physics. Cooperation in the last-named field will include joint use of existing and new facilities, and accelerator and detector instrumentation R&D, according to Bernard Hildebrand, in charge of research at the DOE Division of High-Energy Physics.

—CBW

Agnew quits Los Alamos, goes to General Atomic

Harold M. Agnew has resigned as director of the Los Alamos Scientific Laboratory.

In his resignation letter to David Saxon, president of the University of California, Agnew said, "My decision has been influenced by my dissatisfaction with University administration policies and a lack of advocacy for the total LASL program." Another factor that Agnew cited was "my frustration with what I consider to be a continuing inequitable distribution of defense program funding by the Department of Energy between the LASL and LLL [Lawrence Livermore Laboratory]."

Agnew was a member of the Enrico Fermi team that worked on the first nuclear chain reaction at the University of Chicago in 1942. He first went to Los Alamos in 1943; later he was a member of the scientific team on the first nuclear-weapon strike against Hiroshima. He returned to Los Alamos in 1949 upon receiving his PhD at the University of Chicago. He has been there ever since, except for his service from 1961 to 1964 as Scientific Adviser to the Supreme Allied Commander in Europe at NATO's Paris headquarters. Agnew was head of the Los Alamos Weapons Physics Division from 1964 to 1970, when he became the laboratory director, succeeding Norris E. Bradbury.

Effective in March, Agnew became president of General Atomic Company, based in San Diego. He succeeds W. W. Finley Jr.

Carter names eight to National Science Board

President Carter has nominated the following eight scientists to serve six-year terms on the National Science Board, the policy-making body of the National Science Foundation: Lewis M. Branscomb, vice president and chief scientist, IBM; Eugene H. Cota-Robles, vice chancellor and professor of biology, University of California at Santa Cruz; Ernestine Friedl, professor of anthropology, Duke University; Michael Kasha, director of the Florida State University Institute of

Molecular Biophysics; Walter E. Massey, dean of the college and professor of physics, Brown University; David V. Ragone, dean of the College of Engineering, University of Michigan; Edwin E. Salpeter, J. G. White Professor of Physical Sciences, Cornell University, and Charles P. Slichter, professor of physics and in the Center for Advanced Study, University of Illinois at Urbana. Slichter has completed a partial term on the Board and was renominated for a full term.

DOE hopes to fund young particle physicists

The DOE Office of Energy Research expects to fund approximately ten research projects of young, untenured high-energy physicists in fiscal year 1979. Both experimental and theoretical research proposals will be considered for multi-year funding. Applicants should be tenure candidates at sponsoring institutions with a commitment to high-energy physics; sponsoring institutions will be expected to share costs. For additional information contact D. C. Peaslee, Division of High-Energy Physics, Mail Station J-309, US Department of Energy, Washington, D.C. 20545.

in brief

The second edition of the trilingual *International Classification System for Physics* is now available from the International Council of Scientific Unions, Abstracting Board, 17 Rue Mirabeau, 75016 Paris, France. The cost per copy is \$10, prepaid.

The *Journal of Non-Equilibrium Thermodynamics*, which is issued quarterly, may be ordered from Walter de Gruyter, 3 Westchester Plaza, Elmsford, N.Y. 10523. The editors are J. U. Keller (Technische Universität Berlin) and C. G. Stojanoff (Technische Hochschule Aachen).

The Cooperative Institute for Research in Environmental Sciences of the University of Colorado at Boulder offers one-year visiting fellowships for interests in atmospheric science, solid-earth science, atmospheric and terrestrial electromagnetic-wave propagation and paleo- and rock magnetism. For information, contact The Director, Visiting Fellows Program, CIRES, University of Colorado, Boulder, Colo. 80309.

The National Science Foundation's *Federal Funds for Research, Development, and Other Scientific Activities* for fiscal years 1976, 1977 and 1978 is now available for \$2.50 from the Superintendent of Documents, Washington, D.C. 20402 (stock no. 038-000-00367-4). □